35/12 July 1970

Soil Conservation

Devoted to the wise use of land and water resources

Helping counties plan for tomorrow

Soil Conservation Service, U.S. Department of Agriculture

Soil
Conservation
Devoted to the wise use of land and water resources
July 1970 Vol. 35, No. 12

Counties in action...

On the conservation front, district leaders and professional conservationists are discovering a larger purpose in their work—improvement of the whole community rather than resource improvement for its own sake.

County governments and their regional groups are discovering that in their quest for better communities, conservation facts and knowhow are invaluable.

Getting conservationists and counties together is the thrust of this month's articles.

In Wisconsin (p. 267) seven counties with half the state's population gear up to accommodate another million residents.

In Georgia (p. 270) teamwork on many fronts avoids duplication and wasted planning, and gets more done.

In Oregon (p. 273) counties look to the small watershed program for help in bringing close-to-home recreation opportunity.

Nevada counties perk up with help from a Resource Conservation and Development Project (p. 272).

Soil survey facts make a better building code in Ohio (p. 276), and a base for tax assessment in Nebraska (p. 278).

Rice finds a new use in Florida (p. 283); a Virginia county gets a new park, its first (p. 279); a Michigan watershed project returns 600 cents on the dollar (p. 275); and an SCS planting guide aids Colorado highways (p. 288).

Sediment control: A review (p. 284) and Administrator Grant's message (p. 287) call attention to an important new aid to county and district battles against our number-one water pollutant.

COVER: Fiber netting keeps a suburban drainageway stable until plants are up, Fairfax County, Va.

267 Wisconsin counties get ready for growth

270 Team effort pays dividends in resource planning
By Trammell Carmichael and R. W. Oertel

272 State legislature bolsters Nevada RC&D
By Albert Neu

273 Oregon counties invest in watershed lakes
By Galen S. Bridge

274 Catfish crop to increase economy

275 Misteguay now flows like a good creek should

276 Soil survey is base for building code
By Frederick S. Merrill

278 Soil maps are peg for land assessment
By Vernon A. Wortman and Robert S. Pollock

279 Community venture sparks playgrounds drive

280 Conservation in action
Gravel deposit, New York; water pipelines, Michigan; fish habitat, Florida; terracing, Nebraska; football fields, Tennessee; concrete spillway, Ohio; exotic game, Texas; golf course, Arizona

283 Rice for cover
By Robert M. Craig

284 Meetings

284 Review

286 Recon

287 From the Administrator
Planning for the environment

288 Planting guide aids road-erosion control

Prepared in the Division of Information, Soil Conservation Service, U.S. Department of Agriculture, Washington, D.C. 20250

CLIFFORD M. HARDIN, Secretary of Agriculture
KENNETH E. GRANT, Administrator, Soil Conservation Service
BEN O. OSBORN, Editor
GEORGIE A. KELLER, Production Editor

SOIL CONSERVATION is the official magazine of the Soil Conservation Service, published monthly by direction of the Secretary of Agriculture as administrative information required for proper transaction of the public business. Use of funds for printing this publication approved by the Director of the Bureau of the Budget July 17, 1968.
Reprint permission: Contents of this magazine may be reprinted without special permission. Credit is not required but is appreciated. Photos available on request.
Commercial names: Mention of commercial enterprises or brand names does not constitute endorsement or imply preference by the Department of Agriculture.
Subscription: $2.50 per year, $3.25 foreign. Single copy 20 cents. Discount of 25 percent on orders of 100 or more sent to same address. Order direct from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

Let's use our heads . . .

Wisconsin counties get ready for growth

Kicking, screaming, hungry and thirsty, 70 million more Americans will join us in the next 20 years. Almost a million of them will live in a seven-county region of southeastern Wisconsin. They will be among the lucky Americans; this area is *planning* for their arrival.

The counties of Washington, Waukesha, Walworth, Milwaukee, Ozaukee, Racine, and Kenosha are a modest 5 percent of Wisconsin. But they have 49 percent of the state's population and provide 50 percent of its jobs. The seven counties are Wisconsin's "big growth" area.

The problem of the area can be simply stated: Southeastern Wisconsin's population grows. Its land, water, and air supply does not. This is not unique. Too many people—with too little planning—have produced a nationwide familiarity with monumental traffic jams, ugly suburbs, and polluted lakes.

Dr. Kurt Bauer, executive director of the Southeastern Wisconsin Regional Planning Commission, is aware of the possibilities of environmental catastrophe—and equally aware of what can be done to avert them. Explains Dr. Bauer, "I don't include myself among the prophets of gloom and doom because I know, for example, that southeastern Wisconsin can absorb a million new people in the next 20 years and wind up with a better environment for life than we have today—if we use our heads."

SEWRPC

The Southeastern Wisconsin Regional Planning Commission (SEWRPC) was signed into existence by then-Governor Gaylord Nelson in August 1960, upon unanimous petition of all seven county boards. The commission has 21 members, three from each county. It oversees a professional planning staff, headed by Dr. Bauer, which is charged with regionwide research and inventory of southeastern Wisconsin resources, preparation of a framework of long-range plans, and assistance to local authorities as they implement plans at various levels of government.

Dr. Bauer feels that progress has been made. A regional land use and a regional transportation plan have been completed and adopted. Modern soil surveys, with interpretations, are available for all counties. (Soil scientists surveyed more than a million acres in 3 years.)

Planning guides

Six areawide planning guides have been published. More are in progress. Comprehensive plans for the Fox, Root, and Milwaukee watersheds are completed or in progress. The aim is good land and water use in areas of rapid change.

"Further," says Dr. Bauer, "some of the planning recommendations are off the desk and into action." He points out that state, county, and other units of government are the principal agencies to pass and enforce land and water-use ordinances. SEWRPC's role is to provide information, make basic recommendations, and assist state and local governments, upon request, with preparation of regulations.

The regional transportation plan has been adopted by all seven counties. One feature will be exclusive roadways for a network of county rapid transit buses.

Protective regulations are now mandatory, statewide, for flood-plain and shoreland areas. Zoning permits are denied in five of the seven counties if the proposed use of flood-plain land is incompatible with protection requirements.

The town of Belgium in Ozaukee County has a zoning ordinance which helps discourage scattered residential development through exclusive agricultural zoning areas of 20 acres or more. Wet-land areas are protected through conservancy districts, which allow compatible uses such as fish hatcheries, wildlife, hunting, and sustained-yield forestry. The Belgium ordinance also prohibits onsite septic-tank filter fields where soils have severe limitations for this use.

Sanitary ordinances

Walworth and Washington counties have sanitary ordinances to regulate onsite sewage disposal and private water-supply systems. Kenosha has a similar ordinance, but applies it only to shore and flood-plain land. The city of New Berlin in Waukesha County has amended its plumbing code to regulate installation of septic tanks. Waukesha County has adopted a new sanitary ordinance. Milwaukee County doesn't need to; it is completely served by public sanitary sewers.

These revised sanitary codes incorporate SCS-supplied soil survey information.

Soil-wise sanitary codes are particularly important in southeastern Wisconsin because approximately half of the area's soils are unsuitable for septic-tank use. Says one local planner, "Can you imagine the hundreds—really thousands—of families that are personally affected because they innocently built new homes, put in a septic-tank system that couldn't work, and then had their kids get sick? Or

perhaps they ran up big bills trying to repair the damage. We think people in our area have the right to expect that local government will protect their interests by helping them avoid these kinds of problems."

Logic versus leapfrog

Dr. Bauer and the commission feel that, for areawide planning purposes, the region can be divided into three broad areas:

(1) Areas that can be developed for urban use, including areas that can be readily served by public sewer and water-supply facilities, and good transportation facilities, including mass transit lines.

(2) Areas that should be kept in productive agricultural use.

(3) Areas of "fragile" lands encompassed in environmental corridors along streams and around lakes, steep slopes, woodlands, wet lands, and still-wild areas, which should be kept in an open, natural state.

When there is no planning, and when urban sprawl takes over, the results go far beyond landscape despoliation. Often, they mean economic hardship and misuse of natural resources. "For example," says Bauer, "if leapfrog development occurs on prime agricultural land that should stay rural, and a sanitary sewer trunk is run past the land of a man still trying to farm, the farmer may be assessed for half a mile of sanitary sewer he can't use. This, in turn, will drive him off the very land that should stay in agriculture."

Unplanned growth can shortchange town taxpayers too. Some towns believe that all growth adds to their tax base. But a study in Walworth County shows that new homes there must be worth $50,000 to $60,000 just to "break even." That is, they must bring in enough new tax money to offset the city's added public costs for schools, police, fire, water and sanitary and other public facilities and services. Planning can "group" urban areas and balance community growth so that everyone benefits.

A look at the soils

The ground beneath is understood in southeastern Wisconsin. SCS soil scientists mapped the entire region and developed interpretations for—

. . . engineering purposes, such as soil limitations on road construction.

. . . planning purposes, with soil limitations for home building with or without public sewer systems.

. . . agriculture, for crops, pasture, or woodland.

. . . esthetic and recreational uses, with limitations or advantages for maintaining wildlife or building parks.

Within this framework, there are six precise interpretations for engineering uses; seven for road construction; 12 for water management; and eight for farm or rural uses.

Southeastern Wisconsin has a particularly strong need for information on soils suitable for septic-tank sanitary systems. Almost any group of businessmen, builders, or housewives can tell of unlivable homes, abandoned subdivisions, or expensive building repairs resulting from lack of soil information.

This is not necessary. Dr. Bauer has estimated that citizens in the region can save $300 million in the next 20 years through the proper use of SCS soil survey information to locate new homes on suitable sites.

SEWRPC officials, who paid $130,000 to cost-share the soil survey, use soil information extensively in their planning work. It is useful, for example, in selecting sites for parks, airports, golf courses, and wildlife preserves as well as areas suitable for residential, commercial, and industrial development and locations for roads and transitways. Fourteen of the 26 major recreation areas recommended by SEWRPC for 1990 are in use, and nine of the remaining areas have been wholly or partially acquired by public agencies. SCS will assist in the soil and water conservation phases of the new park development.

Soil information indicates where filling, dredging, lagooning, or land grading can be safely done and where selective cutting of shoreline vegetation is possible. Wisconsin's 1965 Water Resources Act requires all counties to protect their shorelands, and SCS soil survey information helps local governments to delineate the needed zoning areas. In some counties, the soil map is part

A high water table, which the builder could have learned about in the Waukesha County soil survey means trouble in this basement excavation.

Farming unsuitable land in Washington County, Wis., led to the forming of a huge gully which now threatens the farm house.

of the official document on which the zoning ordinance is based.

The Fox River watershed covers 35 percent of the seven-county region. Its land and water problems sound like a shopping list of environmental ills: Increased flooding from rapid land use changes, water pollution, accelerated soil erosion and silt buildup, and inadequate reservation of park and open space areas.

The Fox River watershed study covered all major water uses and problems. SCS did the major work on the hydrologic and hydraulic parts of the study.

Flooding is a serious problem. Damages may double in the next 20 years if nothing is done. SEWRPC watershed planners are recommending good land use as their major flood-prevention method. "Protect the flood plains of a river," says Dr. Bauer, "to preserve the natural floodwater-storage capacity. Use the land for purposes compatible with the requirements of the stream system in time of flood."

Pollution is serious. Ten of the 12 major lakes sampled in one study had coliform bacteria levels higher than state water-quality standards permit for swimming. Yet, the demand for water-based recreation in those lakes will almost triple by 1990—not to mention the need for domestic and industrial water.

Muncipal sewage plants are the most important source of water pollution—not because of inefficient operation or defective designs, but because the region's waterways have a low natural base flow and low waste assimilation capacity even for treated sewage. In some areas of the Fox River, 75 percent of the summer and fall low flow consists of treated effluent. If nothing is done, this will rise to 90 percent by 1990, and some streams will become little more than open sewers.

To prevent this, SEWRPC watershed planners recommend two major changes: More intensive sewage treatment and more coordination between future urban development and the soil types suitable for onsite sewage disposal.

Currently, all plants in the watershed provide secondary treatment of sewage. The study proposes that advanced waste treatment be provided. This will remove nutrients from the waste water as well as additional oxygen-demanding wastes to the point where swimming and game fishing will again be possible. The sewage treatment proposed is so advanced that only one or two small areas in the Nation now have it.

What will implementation of the Fox River comprehensive plan for water management cost? An estimated 7 to 8 percent increase in local property taxes, says SEWRPC planners. The alternative, they explain, is not the status quo, but a worsening of present flood, pollution, and silt problems as the population increases and land and water resources are more heavily used.

Dr. Bauer sees a need, as do many of his planning contemporaries, to extend the knowledge and experience of SCS and local soil and water conservation districts into urban areas. Take Milwaukee, with its million residents—the industrial, commercial, and shopping center of southeastern Wisconsin. Frank Underwood, head of the city's water department, says sediment was not a problem in water until 40 years ago. Milwaukee taxpayers now hand over a half million dollars a year to take the sediment out of their water supply. And the U.S. Army Corps of Engineers says that in the next 10 years the city will pay another $3,282,128 to keep the Milwaukee harbor free enough from sediment to stay navigable.

In its land and water use problems, Winsconsin is no worse off than many other areas of the Nation—and perhaps not so bad in many respects. The difference is that—along with some other regions—southeastern Wisconsin has looked squarely at the future and is working out better ways to use its natural resources.

Walter Lippman wrote: "Anything that makes the world more humane and more rational is progress; that's the only measuring stick we can apply."

Southeastern Wisconsin has cast its vote for progress. The wisdom of its choice can be judged better in 20 years. But now, in 1970, its citizens are off and running, with the tools of imagination, technology, and research firmly in their hands and determination to implement their land use and other plans.—CAROLYN M. JOHNSTON, *Information Division, SCS, Washington, D.C.* ♦

Team effort paying dividends in Georgia's resource planning

By Trammell Carmichael and R. W. Oertel

President, Association of County Commissioners of Georgia, and assistant state conservationist, SCS, Athens, Ga.

The conservation development of Georgia's natural resources is moving forward at a quickening pace.

This faster progress can be traced to a team effort by county and city governments, multicounty planning and development commissions, soil and water conservation districts, and the Soil Conservation Service. They are working together on such efforts as county and multicounty planning, the Gwinnett County Resource Conservation and Development Project, watershed development, recreation-potential inventories, flood-plain zoning, roadside-erosion control, and the location of a new major airport.

This coordinated approach means less duplication and wasted planning that in the past ended sometimes in contradictory decisions. It also means a more united and concerted effort by all groups toward projects of community- and area-wide benefit.

Thick sericea lespedeza checks erosion along hundreds of miles of Cherokee County, Ga., roads. Conservation district supervisor, R. F. Quarles (left); county commissioner, Trammell Carmichael; and Joe Booth, SCS, check the lush growth.

Roadside-erosion control

For many years officials of city and county governments in Georgia have cooperated with conservation districts and the SCS on roadside-erosion control and beautification. Nearly 20 years ago the state association of county commissioners and conservation district supervisors adopted a joint program of roadbank-erosion control demonstrations. Thousands of miles of highway backslopes have been shaped and seeded to erosion-stopping grasses and legumes.

Harold Hefner, county commissioner of Gilmer County in the heart of the Appalachian Mountains of north Georgia, reports: "We've seeded more than 375 miles of backslopes to keep them from washing away. Our seedings save us a lot of time and money we once spent keeping our ditches and road pipes clean. I tell you, this is one of the best programs we've ever gotten into here in Gilmer."

Commissioners in Fulton County (metropolitan Atlanta) entered into a three-way agreement with the Atlanta District and SCS to improve roadside backslopes.

In Walton County the teamwork goes a stride further. There county commissioners, conservation district supervisors, and SCS men each year select sections of secondary roads needing roadbank stabilization. Conservation-treatment plans are prepared by SCS. The areas are then shaped by county employees in slack periods.

District cooperators donate sericea lespedeza hay which is cut and baled green in early fall. County highway crews spread the hay on the prepared slopes. The ripening seed filters through the hay mulch to the seedbed below. Many miles of Walton County roadsides now are covered with lush sericea.

Flood prevention

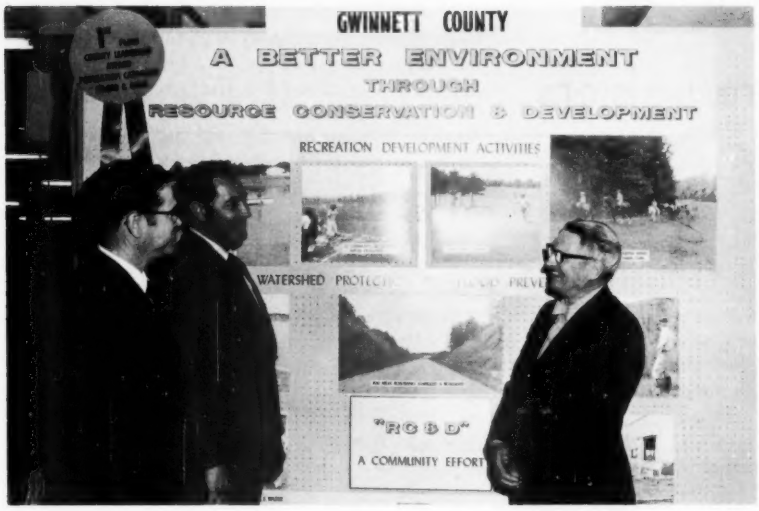
City-county-district-SCS teamwork is one of the reasons Georgia has one of the most active small watershed programs in the Nation.

"It just makes good sense that we all work together on this because the entire community benefits from these projects," Jim L. Gillis, Jr., said. Gillis is a district supervisor, a county commissioner, and chairman of the state's Soil and Water Conservation Committee.

Almost since the small watershed program began in the mid-fifties, county governments and conservation districts have cosponsored all watershed projects in Georgia. Today the state ranks as one of the leaders in the Nation with 19 projects completed and 40 in the construction stage. Flood-prevention benefits already have amounted to more than $1 million annually.

J. Dixie Harn, Bryan County commissioner, worked with the Coastal Conservation District officials and SCS on the Mill Creek Watershed Project. Last year, even though the project was only partially constructed, the team effort paid off when 70 inches of rain fell in 4 months, 10 inches of it in 6 hours.

"If it hadn't been for this water-



From left, Robert Peeples, SCS; W. R. Pruitt, Gwinnett County commissioner; and Glenn Bennett, ARMPC executive director, before exhibit showing county progress through RC&D.

shed project," Harn said, "water would have stayed around here for weeks and weeks. It's hard to count up all this watershed means to this community."

Planning commissions join

A new partner was added to the county-district-SCS team several years ago when Area Planning and Development Commissions (APDC) came into the picture. The first of these modern multicounty groups, the Atlanta Region Metropolitan Planning Commission (ARMPC), was born in 1947. It now has the distinction of being the oldest publicly supported agency of its kind in the Nation. Today 18 APDC's cover the state and complement the work of about 200 city and county planning commissions.

Glenn Bennett, executive director of ARMPC, says, "Our agency is dedicated to guiding metropolitan growth. We consider our principal job to be that of making and updating a regional development plan. Our preliminary plan was developed with little attention to the soil and land conditions. But our revised plan published last year is based upon the best soil information available from the Soil Conservation Service."

The working relationship between the ARMPC, the Atlanta and Upper Ocmulgee conservation districts, the SCS, and the county governments was the first to be formalized in Georgia.

Working agreements between other area planning commissions, conservation districts, and the SCS throughout the state followed. These form the basis for programs of work to plan, conserve, and develop the natural resources of Georgia.

Joint projects

One of the first major activities after APDC's became "team" members was the development by SCS of revised generalized soil maps for all counties in the state with interpretations for many agricultural and nonagricultural land uses. APDC's have published this information in attractive booklets bearing such titles as *Soils Interpretations for Regional Planning in Metropolitan Atlanta, Soil Suitability for Land Use and Development in the Coastal Plain Area, Soil Interpretations and General Soil Map in Slash Pine Area,* and *Soil Suitability for Land Development—Lincoln County.*

Appraisals of outdoor-recreation potentials have been a second major activity of the district-county-commission-SCS team. This information is being published jointly. *Potentials for Outdoor Recreational Development in Gwinnett County RC&D Project* is an attractive booklet being used widely by all groups to promote recreation development.

A more elaborate publication, *Recreation Potential Analysis,* was published by the Lower Chattahoochee Valley ADPC. A 20-year master plan for recreation was developed for the city of Columbus and Muscogee County using the soils and recreation data.

Richard K. Allen, executive director of the Lower Chattahoochee Valley APDC, in speaking of benefits from the working arrangement with the conservation district and SCS said, "Our agency, its 43 cities and towns, and our seven counties have received a huge dollar value in services."

The site for a second major airport for Atlanta is an example of how the team approach can sometimes help find answers to unusual development problems. Early in the discussions the ARMPC called upon the soil conservation district and SCS for an "in-depth" evaluation of four potential sites and for three separate runway configurations for each site. After consideration of the many physical factors involved in land use determinations, SCS presented technical information on each of the locations.

Public officials charged with planning and development are everywhere encountering a mounting public concern over a quality environment. Teamwork between Georgia's city and county governments, conservation districts, and the SCS is taking advantage of combined knowledge, skill, and judgment from many sources to meet these challenges in the best conservationist tradition.♦

Awakening in the West . . .

State legislature bolsters central Nevada RC&D

By Albert Neu
Project coordinator, SCS, Austin, Nev.

A 12-million acre section of central Nevada, where mining once was king, is like a western-style Rip Van Winkle who, after idling on the range all these years, is saddled up and riding again.

It was prosperous country in the old days, until the mines began to play out. Livestock has been the backbone of the economy since.

Lack of year-round employment has been a problem. Young folk, with no jobs in prospect, left as soon as they were able.

The Central Nevada Resource Conservation and Development Project with strong support from the state legislature is behind the new bustle and stir.

In 1966 the local leaders in Nye, Eureka, Lander, and Esmeralda counties and the Tonopah, Eureka, Austin, and Esmeralda soil conservation districts formed the Central Nevada Development Association. They looked around for help and learned the RC&D Program of the U. S. Department of Agriculture would be a likely source. In June 1967 the application for RC&D assistance to the Soil Conservation Service was ready.

While awaiting word on the application, the association called on the Central Nevada Resource Action Council to help with work on its plan for area development. The council comprises representatives of state and federal agencies that may be able to assist with local and area economic problems and development projects.

When the Central Nevada RC&D Project was authorized for planning, in September 1968, the local citizens had made an impressive start. A workable plan for area resource development was completed. In March 1969 the project was authorized for operations.

Leaders of the project agreed that a group with legal powers would mean the work could move faster. They proposed to the state legislature the creation of the Central Nevada Resource Development Authority. Established by legislative act in 1969, the authority is governed by a five-member board and includes an eight-member advisory planning commission. The advisory commission is composed of two representatives from each of the four soil conservation districts. This is the group which also serves as the steering committee for the Central Nevada RC&D Project.

The authority has the power to conduct surveys; enter into contracts; borrow money; buy land; and build, operate, and maintain works of improvement.

The authority promptly completed an overall program design and applied for planning funds from the U.S. Department of Housing and Urban Development. The HUD planning program will mean help on specific problems with additional coordination of a regional plan for the area. This step will include a capital improvements program with plans for economic growth, housing, water, sewer and public facilities, recreation, and transportation.

Priorities are being set. Preparation of a detailed 1-year program and a general 5-year program is in the works. Considered will be zoning, subdivision regulations, deed restrictions, building codes, and unification of codes and ordinances.

An example of the new approach to use of the area's natural resources is called the Kingston development. Public and private interests are working together to create a playground unique in the West. A village, patterned in the style of a century past, is being built of adobe. The Nevada Fish and Game Commission has completed one mountain lake and will soon have another ready for use. The U. S. Forest Service is improving roads, trails, and campgrounds.

Plans to make desert land more useful are underway. A special Agricultural Stabilization and Conservation Service seeding program is providing for forage production, with funds up to 80 percent of the cost of seeding, irrigating to establish a stand, and fencing.

In cooperation with the Nevada State Park System, the authority will identify sites of historical interest and insall markers.

A composite recreation-management plan has been compiled by Toiyabe National Forest planning specialists for the north end of the Toiyabe Mountain Range.

A series of 1-day ghost town tours is being developed, and the Tioyabe Trail Ride and Living History Days Celebration, held first in 1968, seems destined to be an annual attraction.

Feasibility studies are underway by the Sierra Pacific Power Company to use Rural Electrification Administration funds to bring electric power to the area. Central Nevada is one of the largest areas in the United States not served by low-cost electricity.

Perhaps the most significant accomplishment in central Nevada's new push for rural development is the growing spirit of cooperation between the various county governments, state and federal agencies, and private enterprise. Results already indicate that the cooperative effort will mean an exciting new future for an area rich in Nature-given resources and in the fascinating history of the Old West. ♦

Oregon counties invest in watershed lakes

By Galen S. Bridge
Assistant state conservationist, SCS, Portland, Oreg.

In Oregon a million or more residents, who look mainly to the outdoors for fun and inspiration, have their eyes on developing plans for water-based recreation a few minutes from home or work.

Their county governments, along with soil and water conservation districts and other sponsors, are taking advantage of the opportunity to develop recreation values in upstream watershed projects. And among the added benefits are water supplies for growing communities, irrigation water for farmlands, and the reduction of flood damages on area lowlands.

Counties near major population centers long have felt the heightening demand for water areas where people could swim, fish, and boat. To meet this demand, four counties are planning or installing facilities to accommodate more than a million outdoors-loving visitors a year.

In Clatsop County, for example, is new Lake Cullaby. More than 80,000 people last year used its 200 sparkling acres of water, with beach, boat ramps, and docks.

In Douglas County's Sutherlin Creek watershed, a recreation development is nearly ready on Cooper Creek Reservoir. The county's Park and Highway Departments are investing $300,000 in roads and facilities. In that same watershed 80,000 visitors enjoyed water fun on another reservoir built for flood prevention and irrigation. Planners are busy with drawings for the Calapoois watershed.

Douglas County also has assisted the city of Sutherlin, the Sutherlin Water Control District, and the North Douglas Soil and Water Conservation District in carrying out their responsibilities. Highways have been relocated, planning assistance provided, and general support made readily available. The county is now involved in the development of a plan for the Calapoois watershed.

Polk and Washington counties are laying even more ambitious plans. Both are near major metropolitan areas and have an urgent demand for water-based recreation.

Through the McKay-Rock Creek Watershed Project, Washington County will develop water and facilities to serve a half-million visitors annually. These developments, within 30 minutes of the half-million Portland residents, will take place on two separate reservoirs.

Rock Creek Reservoir, with a permanent recreation pool of 540 acres will have 140 acres of adjacent land set aside for public use. The area is designed for intensive day use at swimming beaches, picnic sites, and boating facilities. Arrangements for the physically handicapped will be provided.

At a second site in this same project, Washington County proposes to develop 9,000 acre-feet of

municipal water along with recreational facilities. The county has been integrating this project into county and metropolitan master plans for water and land development.

Polk County is developing plans on the Little Luckiamute watershed to include a large recreational development on Teal Creek Reservoir within 30 minutes' driving time from Oregon's capital city of Salem.

The recreation agency of the Mid-Willamette Valley Council of Governments under the direction of Polk County has developed a plan which includes the addition of 15,000 acre-feet of recreation water to the Teal Creek Reservoir. The 260 acres of land around the reservoir is reserved for public use, and facilities will be adequate to meet a peak daily use of 10,000 visitors.

Polk County also is developing 4,000 acre-feet of municipal water supply and assisting other local units of government with flood prevention and irrigation development in the project.

Lane County got an early start in watershed protection. Work on one project has been completed, another is nearly complete, and the Amazon and Flat Creek Project is underway. Leadership of the Lane County commissioners and staff, along with their willingness to invest county funds, has made this progress possible.

Interest in resource development is high in Lane County. Seven additional applications have been submitted to the Secretary of Agriculture for assistance through the small watershed program. The county is a sponsor of the first Resource Conservation and Development Project in Oregon and one of the first 10 in the Nation. Frank Elliot, one of three county commissioners, serves as a member of Oregon's Soil and Water Conservation Commission.

The demand for water development in Oregon is expected to grow. This demand and increasing concern over the total living environment will encourage governmental participation at all levels. Oregon counties are doing their part. ♦

Catfish crop to increase economy

Farmers in Hardin County, Tenn., with the help of federal and state agencies are promoting a unique farm crop—catfish—that promises to increase the economy in the area.

It started several years ago when SCS helped farmers in the Hardin County Soil Conservation District develop catfish production in multipurpose farm ponds. More than 30 farmers began to feed catfish.

Four years ago farmers organized the Hardin County Catfish Producers Association to pool fingerling orders, purchase feed at reduced prices, and exchange ideas. Then the association organized and chartered a marketing cooperative and applied to the Farmers Home Administration for a loan to construct a marketing facility.

Realizing the potential economic impact on the area, members of the seven-county Shiloh Economic Development Corporation joined as a sponsor, and the Office of Economic Opportunity made loan funds available through FHA.

In 1968 the cooperative bought a 94-acre tract of land on State Highway 57 between Shiloh National Military Park and the Tennessee Valley Authority's Pickwick Dam. The plans for the business are to sell most of the fish on a fish-out or pay-lake basis for a small fee and to operate it as a tourist and recreation complex to attract the annual surge of tourists and fishermen. Other facilities include fish-out lakes, concession buildings, live fish vats, fresh and frozen fish, and camping and picnic areas. SCS designed the system of holding and fish-out ponds.

At present the cooperative's 75 members are "farming" 200 acres of water. The project will expand, and membership is expected to increase to 200. Two-thirds of the original membership consisted of low and modest income farmers who qualified for the FHA loan.

Cooperation has been excellent. The Hardin Farmers Coop stocked special pond pipe, chemicals, pond fertilizers, and fish feed, and Hardin County Highway Department graded and surfaced the driveways and parking areas.

The project brings a new source of income for many farm families, provides more recreation opportunities, and improves land use.—S. D. YOUNG, *district conservationist, SCS, Savannah, Tenn.* ♦

Raceways excel ponds for raising catfish

Catfish raising in raceways has proved an advantageous variation of a new economic enterprise for some Georgia fish farmers. The raceway system has a higher production potential than ponds or lakes, which, under good management, yield about 1 ton of fish per acre annually. Each 100-foot segment of an earthen raceway has that capacity.

Raceways are laid out much like terraces but with a fall of 2 feet per hundred. Bottom width is 10 feet; side slopes are 1:1 or 2:1; fish swim in 2 to 4 feet of water that flows by gravity through segments separated by notched walls every 100 feet. Last year, owners installed 14 systems with a total length of 21,400 feet. This year 193 landowners plan to build an additional 386,000 feet for increased channel catfish production. ♦

Benefits adding up . . .

Misteguay now flows like a good creek should

For nearly 40 years Misteguay Creek in south central Michigan was a periodic headache to farmers.

Its annual bill of damages—mainly in flooding of cropland and destruction of roads and bridges—averaged more than $200,000.

The creek rises along the western boundary of Genesee County, crosses northeastern Shiawassee County, and empties into the Flint River in the "Prairie Farm" area south of Saginaw.

The Watershed Protection and Flood Prevention Act of 1954 offered the opportunity the landowners in the 104,000-acre watershed needed. With sponsoring organizations in the three counties, they prepared an application for project help. The sponsoring organizations were the Genesee, Shiawassee, and Saginaw soil conservation districts and the Misteguay Creek Inter County Drainage District. These were joined by the North Creek-orser, Onion Creek, Porter Creek, and Peart (inter-county) drainage districts.

The plan for the watershed, developed by the local citizens with technical help from the Soil Conservation Service, was approved for work in August 1960.

Three floodwater-retarding structures were built. Nearly 6 miles of main channel had been improved when the first real test of the project came in the spring of 1967.

Heavy snow accumulation melted rapidly, and the resulting runoff surged downstream. Each of the three earth and concrete dams functioned as designed. Water was stored for a short time and released at an orderly rate. The rate of runoff is believed to have approached the volume expected once in 50 years.

The Misteguay Project is a tribute to local residents. The untiring efforts of the three soil conservation district board of directors, the drainage district commissioners, and the other local leaders helped to make a dream become a reality. The late C. K. Colby, former Shiawassee County drain commissioner, did much to coordinate the intercounty drainage and flood-control work.

The legal county drain had been under injunction by court order since 1946, restricting farm drainage at the upper end of the watershed. Residents in the area subject to damage by flooding contended that drainage activities in the watershed were increasing their problem. The injunction was lifted when an agreement was reached on the work-plan structural measures.

The local people accepted responsibility for land easements, rights-of-way, and contract administration, bore the cost of 65 percent of the channel work, and assumed responsibility for maintenance.

Federal assistance totaled $881,000 for installation of the engineering works and for SCS technical help. SCS conservationists also helped as the farmers stepped up on-farm conservation measures which are important in reducing runoff and controlling erosion and sediment production.

The Agricultural Stabilization and Conservation Service helped with cost-sharing for conservation work on the land, and the Farmers Home Administration made a loan to finance the local cost of drainage improvements.

The 1,350 farmers in the drainage area will plant 16,600 acres of cover crops a year to prevent soil loss. About 5 million feet of tile and 640 miles of open drains will help relieve the threat of crop loss as the farmers plant navy beans, soybeans, corn, and other crops.

About 600 acres of trees have been planted on land best suited to forestry and wildlife.

The Misteguay Project carries the distinction of having one of the highest returns in relation to cost of any such project—$6.10 for each dollar invested. You can add to that a new sense of freedom from worry on the part of farmers when floods threaten again.—CARL R. STAMM, *district conservationist, SCS, Flint, Mich.* ♦

Some of the channel improvement on Misteguay Creek watershed help floodwater-retarding structures do their job.

Soil survey is base for building code

By Frederick S. Merrill
District conservationist, SCS, Canfield, Ohio

Steep areas are fertilized, seeded, and mulched (above) to prevent soil erosion from clogging sewers and drainage ditches and to stabilize steep slopes bared during construction. Steel-reinforced basement walls (right) can be used where high shrink-swell soils are a problem.

Sam Fiordelise, a Mahoning County, Ohio, building inspector, is helping to put a stop to bulging basement walls and broken roads. When he sends one of his staff to Canfield to inspect buildings, the inspector looks not only for the normal requirements of a good building code, but also at the soil survey map. Why? He must be sure that the part of the code that deals with soil problems is being followed, too.

Canfield is in the rapidly expanding metropolitan corridor from Lake Erie to the Ohio River.

As Canfield grew, developers were interested in constructing homes in a wooded section north of the business district. Because of topography and land use, this was the only direction for growth. In less than 5 years, the section developed into a thriving residential area with wide streets, spacious lots, and homes with price tags from $50,000 to $150,000. Soils that once grew trees and corn were sprouting homes.

The homes and roads met the normal building codes, but something was wrong. When ladies attended a session of their garden club, or when neighbors met while mowing their lawns, they would cautiously ask, "How's your basement?"

The reply was a guarded, "Not too good," and was followed usually by "Neither is mine."

To the trained eye, there was trouble connected with these "wooded lots." The tree in the yard was a swamp white oak, a tree that grows best in poor, wet, heavy clay soils. And on a hot summer day, the soils developed cracks that one could slide his hand into.

Francis McLaughlin, the new mayor, was worried over "the soil problems." There was also a new face in council—Bill Masters, a member of the Planning Commission. These two were determined to do something.

They got in touch with the Mahoning Soil and Water Conservation District supervisors who asked the Soil Conservation Service to discuss the soil problems with the county and city government officials.

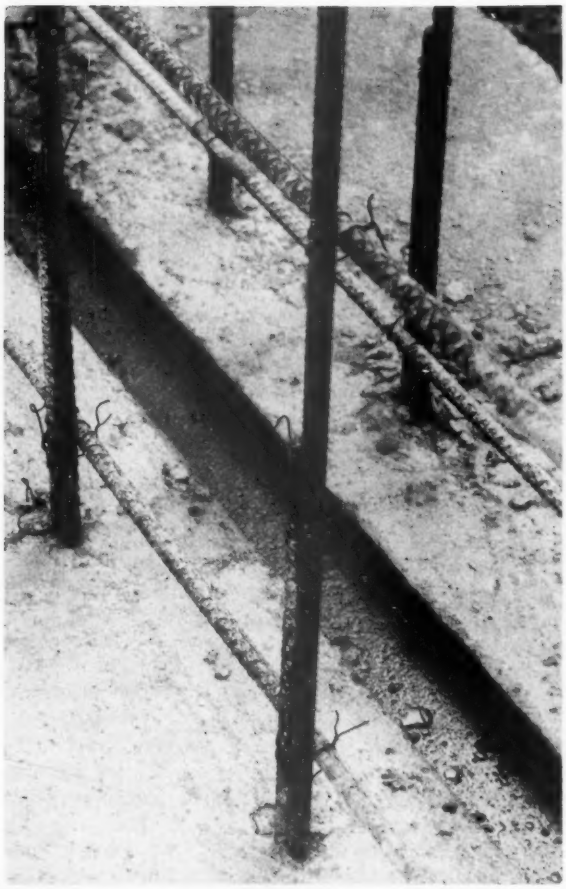
The mayor explained: "Areas are developed, and within a year the roads have gone to pieces and some of these beautiful new homes have cracks in the basement walls so wide you can see through them."

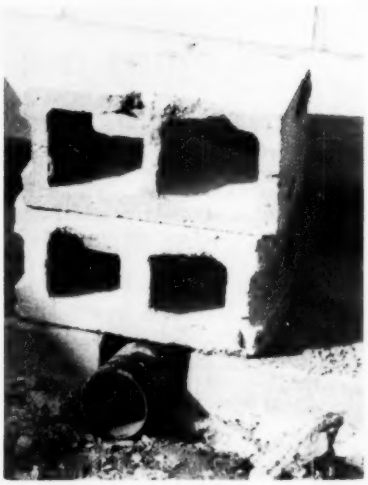
The SCS soil survey was explained. The maps indicated that many of the soils in the area had limitations, problems not so apparent when the area was rolling farmland. But they produced virtual nightmares when put to another use.

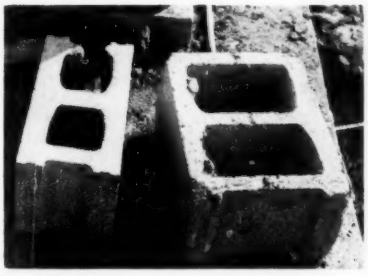
Canfield officials retained a private engineering firm to design walls, foundations, and roads that would hold up on problem soils. SCS provided information on erosion control. The engineering firm then incorporated the technical data into a building code.

One problem remained—enforcement. Since the county already had a well-staffed building inspection department, could the county inspectors enforce these new regulations? Conferences with the Mahoning County commissioners, planners, and the building inspectors were favorable. Certainly, it could be done. All that was needed was special training for the inspectors.

The interest of the county officials has been excited by the results. In time, all Mahoning County building codes may be based on soil survey and interpretation data. ♦







Drainage is provided between internal basement walls to prevent upward movement of water through basement floors. Building footings 30 inches wide instead of the usual 18 inches are used to provide bearing strength and prevent settlement.

Where wet soils are a problem, special asphalt and sheets of plastic are applied to the outside of basement walls (left) to provide a watertight seal. Canfield Village officials (above) gather to sign the working arrangement with the Mahoning District. Seated from left: William Anderson, clerk; Bob Brooks, councilman; Dean Beadsley, Mahoning District; Francis McLaughlin, mayor; William Masters, councilman; Richard Sheets, engineer. Standing from left are Charles Simmers, councilman; Clifford Morrison and Earl Ruggles, Mahoning District; Edgar Kimmel, councilman; Fred Merrill, SCS; and John A. Culler, Mahoning District.

Soil maps are peg for land assessment

By Vernon A. Wortman and Robert S. Pollock
District conservationist and soil scientist, SCS, Fairbury and Hebron, Nebr.

In Jefferson County, Nebr., farms are taxed according to the kinds of soil on them.

The procedure, based on the soil survey completed in 1968, has been accepted with few complaints.

County tax assessor, Raymond Schmidt, says the system was cheap and easy to install. He got permission from the county commissioners to buy copies of the county soil survey maps from the Soil Conservation Service for about $200.

With the help of seven local people on an advisory board, and with facts supplied by agricultural agency representatives, Schmidt adopted a system for using the soil information from the recently completed soil survey for land evaluation.

The state tax commissioner's handbook now provides: "Classification of rural lands shall be based on and comply with the classifications determined by the latest soil map prepared by the Soil Conservation Service."

The soil symbols for Jefferson County were grouped into eight groups based on soil characteristics such as depth, texture, slope, and other factors. Beginning with the group 1—deep, loamy bottom land—they cover all the conditions down to group 8, wasteland. Soil survey symbols directly from the maps are listed with each grouping so that taxpayers can double check their own assessment. Cooperators with the Jefferson County Soil and Water Conservation District check their tax records with the soil and capability maps in their conservation plans.

Schmidt and his advisers, after study, assigned comparative land values for each soil group. They invited agricultural economist, Phil Henderson, University of Nebraska Extension Service, to discuss land values, yields, and production factors with them. Final decisions were made by local people after hearing the expert.

To introduce the new system, county officials and advisers held a series of public meeting and field tours. They asked SCS people to explain the soil survey and soil groupings. Extension Service people discussed yields, prices, and management factors. Questions to seek full understanding were invited.

Adjustments were made where groups 1, 2 and 3 were in grass or trees, because of the differences in net return compared to row crops. Other adjustments for irrigated land were necessary.

To get accurate figures on land use, the advisers used information from the local Agricultural Stabilization and Conservation Service office.

After the new values (or adjustments) went out there were 180 appeals out of the 2,000 landowners in the county.

"We could have avoided most of these if we had had the most recent cropland and pasture information ahead of time," said Schmidt. A few minutes' check of maps and figures with the appeals settled all but 35.

"People being people, there will always be a little dissatisfaction with taxes," Schmidt explained.

Some valuations went up. Others went down. Equalization is the goal.

Past reappraisals were made by considering assessments in surrounding counties, looking at prices for land, estimates by real estate people, and other variables. Schmidt thinks the new system based on soil survey is more accurate and fair. Most people seem to agree. ◆

From left, SCS District Conservationist Vernon Wortman; Tax Assessor Raymond Schmidt; Soil Scientist Robert Pollock, SCS; and Mrs. Irene Hunsberger, assessor's office clerk, review soil survey data that aid tax assessment.

LeRoy Mitchell (left), Cypress Park pool manager, explains operation of a poolside water-filtering device to Rufus Hart, treasurer, Citizen's Advisory Council; Pete Garrison, SCS; and Edward L. Felton, chairman, Nansemond County Park Authority.

Success of community venture sparks area playgrounds drive

Cypress Park, which at present is 4 acres and a swimming pool, is the first public development of its kind in Nansemond County, Va.

For the county and probably for a much larger area it is only a beginning. Already plans are taking shape.

For many of the 9,000 children and 800 adults who made use of the park and pool for its first season last year, it was a first experience in water just for swimming.

You see, income in Nansemond County is only 71 percent of Virginia's average. For some families the income range is pretty low. But at Cypress Park pool no one who wanted to swim was turned away. Those who didn't have the 25-cent admission price could help with work around the pool to earn the fee. The neighborhood group that sets policy and the few regulations that are needed decided that even so small a fee would mean appreciation of the park's value. It has seemed to work out that way.

The idea that produced Cypress Park also resulted in the forming of the Citizens Advisory Council. LeRoy Mitchell, who now manages the park, helped with the organization work. Rufus Hart served as treasurer. A round of church suppers, raffles, and door-to-door canvassing followed. Local business men chipped in.

The County School Board deeded the land to the Park Authority of which Edward L. Felton is manager. Technical help for developing the site was furnished by the Soil Conservation Service through the Peanut Soil and Water Conservation District.

Construction was not without its problems—the soils were predominantly wet. But in June of 1969 the park was ready. Dedication speakers, the high school band musicians, and an enthusiastic gathering of citizens were on hand for a ceremony. A thousand swimmers that day took their dip free in the 84-foot-long pool.

You can't imagine a community with greater pride in an achievement. Commonwealth Attorney Robert Gillette estimates the new park serves 25,000 people.

"We could use 20 more parks like it," he observed.

Chairman Felton of the Park Authority, which was created to bring the project into being, reports that other recreation areas for the county even now are under study. The Peanut District already has pinpointed possible park locations. Felton says the county is inviting neighboring counties to join in a regionwide park development movement to provide for needed recreation space. The need, he explains, is intensified by the spread of population from urban centers like Norfolk, Portsmouth, and Franklin.

Added Mitchell: "Our neighborhood is waking up to what you can do with a piece of land like this, with the right kind of cooperation. We have still other improvements in mind—softball, tennis, basketball, and possibly an indoor recreation building."

With a new season for the park and its pool underway, though, Mitchell predicted: "Our youngsters are learning fast. We'll soon have our own diving and racing teams."

—WILLIAM A. PHILLIPS, *area conservationist, SCS, Franklin, Va.* ♦

Conservation in action . . .

Gravel deposit paves way for community playground

New York

In 1965, representatives of the Lions Club of Pawling, N.Y., met a Soil Conservation Service employee at the Washington township swimming pool.

The committee had observed that several communities in the Dutchess County Soil and Water Conservation District had developed recreation areas around ponds. They had questions.

Aren't such ponds muddy when 200 or 300 kids are splashing around? What does one cost to build? Do the towns charge admission, and how much?

For years citizens of Pawling had realized the need for a recreational park. When a 75-acre farm close to the village became available for purchase the Lions Club decided to investigate.

The key to the project was whether a suitable pond could be built on the property. The Lions Club committee asked Harold Wright, chairman of the Dutchess District, if the SCS would check soil suitability and other factors.

The SCS men indicated that a pond site of about 2½ acres was feasible, and it would be well supplied with clean, even potable, ground water. The club decided to buy the property and an additional adjoining 9 acres.

Until the day the sale of gravel became a possibility, the Lions were wondering where the money was coming from to develop the site. They stood there kicking the gravel when the SCS engineer asked, "Where's all that gravel going I see being hauled through Pawling?"

The gravel had been going to a road job in Westchester County. A Dutchess County contractor was one of the haulers. The firm, on the strength of the findings in test pits, agreed to take the gravel and to finish off the pond if there could be one.

The pit created by removing the gravel became a beautiful pond, supplied with clear, cool water. Today the little farm on the outskirts of Pawling also has two ball diamonds, picnic areas, an outdoor theater site, and an $80,000 bathhouse, complete with shower rooms, lounge, canteen, and kitchen—all overlooking the pond. It is known as the Edward R. Murrow Memorial Park.

Until Labor Day the place is hopping with all the summer activities that such a park affords. In addition there is trout fishing, and in winter ice skating, snowmobiling, and skiing.—JOHN J. PORTER, *district conservationist, SCS, Millbrook, N.Y.*

Michigan

Detroit's water pipelines guided to safe ground

The cost of preparing to meet Detroit's future water needs would be much higher if it were not for SCS soil scientists working with the Detroit Metropolitan Water Service.

Since 1963, they have helped Water Service planners chart a safe course through soil hazards in a 4,000-square-mile service area. Scientists prepare strip soil maps of proposed pipeline routes and note questionable areas that are eventually examined in detail by consulting engineers. Under an agreement with SCS, the soil scientists' salaries and other expenses are contracted for by the DMWS.

Before SCS assistance began, an encounter with a typical critical soil area near Pontiac, Mich., added $100,000 to the original construction cost estimate. High right-of-way costs for the 8- to 10-foot pipes linking Lake Huron with metropolitan Detroit and Flint preclude any more expensive detours.

Children enjoy the swimming pool.

Installing an 8-foot water main.

Fly fishing in diked water area.

Terrace saves 9 inches of topsoil.

With many miles of pipeline yet to be laid, DMWS Engineer Ron Bekkala says: "Not knowing about soil problem areas could cost us a fortune. I don't think we'd dare move without SCS guidance."—JERRY D. LARSON, *soil scientist, SCS, Ann Arbor, Mich.*

Florida

Improving fish habitats in drainage systems

During the past 25 years more than 500 miles of drainage mains and laterals, dikes, and diversions have been constructed in Florida's Osceola Soil and Water Conservation District. During the first 6 or 8 years, little or no attention was paid to the waters created by these works. Any recreational or fish and wildlife benefits resulting were a happy by-product of the practice installed and were regarded as coincidental. Drainage systems are now designed to ensure recreational benefits. Sometimes the additional cost is substantially above that necessary for drainage alone.

In 1953, Leroy Bass, then a member of the Osceola District board of supervisors, requested assistance through the district to design and lay out a water-control system on his 17,000-acre ranch at Kenansville. The watershed draining through his ranch was about 30,000 acres. The outlet was through sloughs and cypress swamps, with an ill-defined channel discharging into Blue Cypress Creek, the headwaters of the St. Johns River. Periodic droughts cause shallow canals to dry up.

It was decided to deepen certain areas 2 to 3 feet below the normal bottom of the canal, to see if a year-round fish population could be maintained. The results exceeded expectations: The Bass Canal has consistently produced some of the finest black bass fishing in the county. One reason for this is believed to be related to water exchange in the canal.

It was designed to remove water under range conditions and, as a consequence, overflows its banks periodically. This flooding flushes out water weeds and organic accumulations, provides additional spawning areas for fish, and increases fish food sources.

Since the first effort, fish habitat improvements have been built into many water-control systems in the district, and all have proved productive. The Osceola District office receives continuing reports of good catches of bass and bream as big as 10½ pounds.—WALTER B. HUTCHESON, *district conservationist, SCS, Kissimmee, Fla.*

Nebraska

What good is terracing? This field has an answer

The interesting thing about a certain field on the J. E. Conklin farm near Hubbell, Nebr., is the 9-inch depth of its topsoil.

Other fields in the area with the same slope and same soil type have lost so much soil that what remains can no longer be identified truly as topsoil.

The Conklin field was terraced in 1933 in a demonstration that attracted 400 landowners.

Francis Wiedel of the Soil Conservation Service and a conservation contractor noticed the difference in topsoil depth when the contractor moved into the field to begin a re-terracing job.

The old terrace system had 12-foot channels and 8-foot side slopes. A steel-wheeled tractor and a pull grader were used.

Wiedel observed that the soil, with its better tilth and moisture-holding capacity, worked more easily. Fertility was intact, proof enough of the value of terracing as a conservation measure to protect the soil resource, he reported.—DWIGHT I. PUMPHREY, *district conservationist, SCS, Hebron, Nebr.*

Tennessee

Football fields in shape for summer scrimmages

Suitable climate for summer football practice came naturally to East Tennessee State University in the mountainous country around Johnson City. But fields had to be improved before they could withstand the footwork of the Atlanta Falcons and the school teams.

Arrangements for SCS technical advice on drainage and vegetation problems were made by the Washington County Soil Conservation District at the request of head football coach, John R. Bell, and members of the Alumni Association's Buck-O-Mo Boosters Club.

"We had enough room for the four practice fields we needed for the Falcons and ourselves," Bell said, "but the area was subject to flooding. After each rain, pools in low places made the soil soggy, damaged existing grass, and eventually became mudholes."

In 1967 two fields were raised above the flood plain, and a waterway was shaped to carry away runoff. After provision was made for

After big rain, Best and Myers look at structure well protected by dense fescue grass.

internal drainage, the entire area was seeded to fescue and bluegrass.

That July, the Falcons put the fields to the test. Twice daily for 2 months, cleated shoes and 6 tons of muscle dug into the sod. The playing surface held up again during another 60 days of hard use the following summer. Coach Bell added new topsoil and reseeded the fields in the spring of 1969 according to a normal maintenance plan.

"Vegetation has held up well, considering the rough treatment it has been through," Bell said.—A. S. HARVEY, *district conservationist, SCS, Jonesboro, Tenn.*

Ohio

Conservation effort paid the night of 'big rain'

Vincent Best of Norwalk township in Huron County, Ohio, was echoing what hundreds of landowners were saying after what they called "the big rain." Twelve inches fell overnight in July 1969.

"Conservation work is like taking out insurance: You need it when you don't expect it," he said.

A flood-restricting concrete spillway in one of his fields had saved his soil and his crop, Best explained. He had been having trouble with an active gully for years.

"When we designed that structure, we didn't have that kind of rain in mind," said Martin Myers, Soil Conservation Service conservationist at Norwalk. "But it did the job."

The structure received the runoff from 100 acres. The fescue grass on the emergency spillway carried the high volume of water without damage.

For 20 years cooperators in the Huron Soil and Water Conservation District had been working on conservation farm plans. Their work paid dividends that night.—GENE F. BALTES, *district conservationist, SCS, Tiffin, Ohio.*

Texas

Exotic game makes way for conservation work

The Bear Creek Scout Camp, in the beautiful Hill Country of Texas, is responding to a long-range conservation plan designed to protect and improve its natural resources.

As a result, future Scouts will be able to enjoy the natural rugged beauty of the area.

The Alamo Area Council, a 15-county group around San Antonio, received 775 acres of land as a gift from Captain and Mrs. Eddie Rickenbacker in 1959, and bought another 1,892 acres. Included in the gift were 500 head of Indian and African antelope and Japanese deer.

The grass resource had suffered from heavy stocking of these game animals during the drought of the 1950's. The animals were trapped and sold to other ranchers as the first step in restoring the vegetation. They now contribute to a growing popularity of "exotic" game hunting throughout Texas.

The conservation plan developed by the Bear Creek Camp committee with the help of Soil Conservation Service conservationists included pruning and thinning of brush for beautification and better wildlife habitat. As part of the initiation of the Order of the Arrow last summer, 1,000 candidates helped with the brush pruning and thinning. The native grasses and other vegetation now are rapidly recovering.

Fifteen hundred Scouts enjoyed the camp last summer. Facilities will be needed to accommodate 5,000 for a summer in the not-too-distant future, leaders say.—RAYFORD J. BRISTER, *district conservationist, SCS, Kerrville, Tex.*

Arizona

Maps, soil data used in building golf course

Golfing residents of Willcox, Ariz., like most folks attached to the sport, were willing to accept reasonable challenge from fairways, hazards, and greens.

The Willcox course in Sulphur Springs Valley, however, was too much—intolerable, they agreed. Who could enjoy the pavement-like fairways with the alkali spots glaring in the sun and covered with puncture vine and weeds?

They decided only a new course would do. Ray Hardy, the pro at the Yucca Sierra Country Club, got the assignment.

Among the rural and urban golfers were landowners with experience in the use of Soil Conservation Service technical help available through local soil conservation districts. Soon Hardy found himself gathering information on the proposed site from information in the soil survey of the area. And on aerial maps, such as are used in the development of farm and ranch conservation plans, he located fairways, greens, traps, and clubhouse.

He put the water hazards in the drainways, he explained, to utilize the water from rain and from irrigation runoff and to reduce soil erosion. Soil tests were made to correct problems.

The result, although Hardy insists he is not through with the job, is a beautiful layout with plenty of challenge for those who play the game. And much more satisfaction in playing a course as it is supposed to be. —GARY JACKSON, *soil conservationist, SCS, Yuma, Ariz.* ♦

Rice for cover wins friends

By Robert M. Craig
Conservation agronomist, SCS, Gainesville, Fla.

This field, previously used for winter vegetables, has recently been planted to a rice cover crop. The field will be flooded to a depth of about 5 inches for nematode control.

Rice, one of the world's oldest cultivated crops, is being used in a new way by Florida's vegetable producers in the Palm Beach area. Farmers are growing rice for soil cover. There are side benefits—food for dove and quail and replacement of important organic matter to the soil.

After the Palm Beach-Broward Soil and Water Conservation District was organized in 1964, the use of cover crops became an important part of its program of conservation. Results have been good. Today, an estimated 4,000 acres are planted to summer cover crops for soil improvement and prevention of erosion. Millet, sorghum, hairy indigo, and jointvetch are used, too. But rice is the most important.

Palm Beach-Broward District supervisor, Fritz Stein, of Belle Glade, near Lake Okeechobee, had been growing rice on organic soils as a grain crop under the Agricultural Conservation Program. He was one of the first people of the area to realize its potential for cover.

E. E. Cooper, farmer, and D. E. Vandergrift, SCS, examine the rice cover crop planted on winter-vegetable land.

Probably the most important fact is that rice can be used for cover during the off-season, when vegetable land is flooded for nematode control. E. E. Cooper, another of the Palm Beach-Broward District supervisors, who lives in Boynton Beach, and several others started using rice as a cover crop on mineral soils that occur close to the coast. Rice performed just as well on these mineral soils and is now widely used.

Cooper uses rice as a summer cover crop on about 100 acres he plants to peppers, squash, and beans during the winter vegetable season. He says that rice is the best cover crop to use before and after winter vegetables. According to Cooper, dove and quail taken in the vicinity of his ricefields during the last hunting season were unusually fat, and their crops were full of rice grains. Smaller birds will ride the seedheads to the ground and eat their fill of rice.

Clyde Parnell, manager of Perfection Farms at Boynton Beach, is enthusiastic about rice. Parnell reports a rice cover crop before a crop of peppers has resulted in a 69-bushel-an-acre increase over the state average.

Another convert to rice for cover is R. E. Lee of Lake Worth. He says that most of the doves taken this year around his place had feasted on rice. According to Lee, they preferred rice to browntop millet, a proved dove food.

There are several reasons why rice is a good cover crop on winter vegetable lands. It has the advantage of growing under flood conditions. These are the conditions for nematode control. It also produces large amounts of organic materials for soil improvement. The thick cover reduces wind erosion on mineral soils. Rice has the added advantage of being usable on both organic or mineral soils, and it fits well into the winter vegetable management rotation.

Growers find they are producing better quality vegetables following a rice cover crop.♦

Meetings . . .

Izaak Walton focuses on 'human numbers'

The Izaak Walton League of America will present "Man and His Environment—the Question of Human Numbers" as its theme at its 48th national convention in Norfolk, Va., July 8-10.

The main program, built around the question of population problems, will be handled by a panel of experts in the fields of demography, ecology, and environmental news. Dr. Durward L. Allen, well-known professor of wildlife and ecology at Purdue University, will deliver the keynote address.

Other issues to be highlighted include: Review of water and air pollution control programs; need to accelerate public land acquisition for national and local parklands and other recreation areas by both public and private interests; plans to work with young Americans (high school and college age) on environmental programs; and assessment of the League's effectiveness in helping to solve environmental problems.

Environmental quality BPW's concern

"Era of Responsibility" will be the theme at the convention and workshops of the National Federation of Business and Professional Women's Clubs, Inc., in Honolulu, Hawaii, July 19-23.

Among topics to be discussed are, "Environmental Quality," "Drugs," "Cultural Progress," and "Crime Prevention."

Great Plains Council to discuss broadened program

The Great Plains Agricultural Council will meet July 30-31 in Albuquerque, N. Mex., to consider new regulations and operating procedures and to revise existing ones where necessary for the broadened Great Plains Conservation Program. The new Great Plains Program handbook will be ready for review.

SCS state conservationists in the Great Plains states plan to meet in Albuquerque before the meeting to discuss policy and budgets for the program.

Nurserymen keep up with industry needs

The 95th annual meeting of the American Association of Nurserymen will be held July 18-22 in San Francisco, Calif. Although the association is nearly 100 years old, its more than 1,800 members continue to modify its scope of activities to meet current industry needs.

The association's membership has grown 32 percent within the past 4 years.

Dates and places

July 1-6, National Education Association, San Francisco, Calif.

8-10, American Society of Agricultural Engineers, Minneapolis, Minn.

8-10, Izaak Walton League of America, Norfolk, Va.

18-22, American Association of Nurserymen, Inc., San Francisco, Calif.

19-23, National Association of Business and Professional Women, Inc., Honolulu, Hawaii.

26-29, National Association of Counties, Atlanta, Ga.

30-31, Great Plains Agricultural Council, Albuquerque, New Mex.

August

2-4, Community Development Society, University of Georgia, Athens, Ga.

16-20, Conservation Education Association, Lafayette, La.

23-26, Association of American Geographers, San Francisco, Calif.

23-28, American Society of Agronomy and Soil Science Society of America, Tucson, Ariz. ♦

Cleaning recharge water

Coagulation by chemicals may help clean up some of the water used to artificially recharge the Ogalala aquifer in Texas. Scientists with the Agricultural Research Service at Bushland, Tex., are studying ways to remove salts, pesticides, and silt carried into playa lakes by land runoff. Chemically coagulated pollutants "fall out" before water is pumped back into underground sources. ♦

Review

Community Action Guidebook for Soil Erosion and Sediment Control. By Mel D. Powell, William C. Winter, and William P. Bodwitch. *1970. National Association of Counties Research Foundation. Washington, D.C. 64 pp., illus.*

This guidebook is a comprehensive new aid to local efforts in coping with the Nation's most abundant water pollutant, sediment. It was prepared under a $41,000 grant from the Federal Water Quality Administration. SCS provided much of the basic information from which the guidebook was developed.

The publication contains useful sediment-damage statistics and technical control methods, but it deals primarily with administrative tactics. It weaves case histories of existing sediment-control programs into a 10-chapter description of ways to organize, finance, implement, and enforce the programs.

Major emphasis is on sedimentation in developing areas, where construction alters drainage patterns, increases runoff, and removes vegetation for long periods.

A draft of the guidebook was reviewed at the National Conference on Sediment Control held last September in Washington, D.C. USDA was a co-sponsor of the conference. The publication first appeared as an insert in the May 1970 issue of NACO's monthly magazine.

County officials and conservation district leaders should find the guidebook a highly useful tool in working together to help communities grow without damaging the environment.—Lee B. Shields, *Information Division, SCS, Washington, D.C.*

Soils of the Tugela Basin. By E. R. Orchard, *et. al. 1969. Natal Town and Regional Planning Report, Vol. 15. Natal, South Africa. 263 pp., illus. (About $12 U.S.; $0.70 a sheet for maps). 14 soil maps at 1:100,000 scale.*

American soil scientists will find this work interesting. Soil descriptions, with some laboratory data and many colored plates, are presented in a well-printed book. The soil maps were made largely through study of air photos with some ground study of soil profiles. The need in town-and-country planning for standard engineering test data is recognized. Both the system of classification and the nomenclature appear to be unique; yet both familiar and unfamiliar terms are explained in a glossary. The work should be useful for general planning. The authors realize that because of the small scale and heavy reliance on photo interpretation more detailed soil maps from closer on-the-ground study would be required for use in operational planning.—CHARLES E. KELLOGG, *deputy administrator for Soil Survey, SCS, Washington, D.C.*

New publications

Our 31,000 Largest Farms. BY RADOJE NIKOLITCH. *1970. USDA Economic Research Service Agr. Econ. Rpt. 175. 64 pp., illus.* Presents comprehensive national and regional information on America's largest farms, based on a special tabulation in the 1964 Census of Agriculture. In 1964, 31,401 farms with product sales of $100,000 or more accounted for 24 percent of all farm product sales. Of these farms, 919 had sales of $1 million or more, or 7 percent of all sales. In 1959, only 19,979 farms had sales of $100,000 or more, and 408 farms had sales of $1 million or more—accounting for 16 percent and 4 percent of all farm sales. In 1964, while farms with product sales of $100,000 or more accounted for 12 percent of all farm product sales in the North and 24 percent in the South, they accounted for 53 percent in the West. Some 524 farms with product sales of $1 million or more, or 0.2 percent of all farms in the West, accounted for more than a fifth of all farm product sales in that part of the country.

An Economic Analysis of Level Bench Systems for Forage Production in North Dakota. BY WALLACE MCMARTIN, HOWARD J. HAAS, AND WAYNE O. WILLIS. *1970. USDA Economic Research Service and Agricultural Research Service Conservation Res. Rpt. 14. 21 pp., illus.* Three sets of data analyzed at Mandan: (1) Cropland study, comparing production from a wheat and corn rotation on benches with and without contributing areas and on natural slopes; (2) grassland study, comparing alfalfa and bromegrass hay production from 50-foot-wide benches with and without contributing areas and from natural slopes; and (3) contributing area study, investigating the effectiveness contributing areas of various sizes in supplying runoff water to level benches.

Cropland Trends Since World War II, Regional Changes in Acreage and Use. BY ORVILLE E. KRAUSE. *1970. USDA Economic Research Service Econ. Rpt. 177. 15 pp., illus.* Discusses a drop of 27 million acres between 1944-64 in land classed as cropland (from 403 million acres to 376 million). Points out that land was being developed in some parts of the country and abandoned or converted from cropland in other places. During these 20 years, 868 counties showed a total increase of 26.7 million acres of cropland while 2,204 counties showed a total decrease of 53.5 million —a net decrease of 26.8 million.

Rural Industrialization in the Southeast Coastal Plain: Case Study of a New Brick Factory in Summerville, S.C. BY JACKSON B. MCELVEEN. *1970. USDA Economic Research Service Agr. Econ. Rpt. 174. 13 pp., illus.* Describes the local economy of a rural area of South Carolina at the time a brick plant was established and examines the short-run impact of the plant through its first year of operation in 1963. Indicates potential for constructing various types of factories in the three rural counties to serve Charleston and to provide needed jobs for rural residents.

Conservation, Science Fair Projects. BY PAUL E. LEMMON, THEODORE C. GREEN, AND MERLE S. LOWDEN. *1970. Soil Conservation Society of America. 31 pp. Ankeny, Iowa. $1.00.* Supersedes *Conservation of Our Renewable Natural Resources—Suggestions for Science Fair Projects in Junior and Senior High Schools* (Agr. Stabil. and Conserv. Serv., 1964). Suggests ways to select the general scientific field and specific area of work, outlines some conservation projects, and lists publications for reference and guidance.

Rural Poverty in Three Southern Regions: Mississippi Delta, Ozarks, Southeast Coastal Plain. BY JOHN L. MCCOY. *1970. USDA Economic Research Service Agr. Econ. Rpt. 176. 38 pp., illus.* Compares major findings of the first series of area studies on the Mississippi Delta, the Ozarks, and the Southeast Coastal Plain but focuses almost exclusively on poverty and its relationships to certain individual characteristics as distributed across the three regions of investigation.

Pictorial Keys to Arthropods, Reptiles, Birds and Mammals of Public Health Significance. *1969. U.S. Dept. of Health, Education and Welfare, Public Health Service Publ. 1955. 192 pp., illus.; spiral binding. $2.25.* Easy identification aid to a wide range of animal species of major importance to man.

Soil surveys

Sedgwick County, Colorado. BY JOHN I. BRUBACHER AND TOM R. MOORE. *1970. 61 pp., illus.; maps 3.17 inches to the mile (1:20,000).* Fieldwork by John I. Brubacher, Tom R. Moore, Clayton F. Spears and Everett E. Geib.

Ventura Area, California. BY RONALD D. EDWARDS, DANIEL F. RABEY, AND RICHARD W. KOVER. *1970. 104 pp., illus.; maps 2⅝ inches to the mile (1:24,000).*

Antelope Valley Area, California. BY GEORGE A. WOODRUFF, WILLIAM J. MCCOY, AND WAYNE B. SHELDON. *1970. 187 pp., illus.; maps 2⅝ inches to the mile (1:24,000).*

USDA involved in environment

The Department of Agriculture is broadly involved in the problems of the environment. Of all the land in farms and ranches in the United States, 68 percent is directly involved in USDA soil and water conservation programs. USDA administers 187 million acres of national forests and grasslands. It has key responsibility relative to the use of agricultural chemicals—particularly pesticides—by both farm and nonfarm people. ◆

First national survey of roadside litter

The first national survey of roadside litter conducted by the Highway Research Board of the National Academy of Sciences shows that American motorists every year drop nearly 16,000 pieces of litter per mile.

This project was conducted in cooperation with the highway departments of 29 participating states and sponsored by Keep America Beautiful, Inc., the national litter-prevention organization.

The findings also reveal that total litter volume positively correlates with average daily traffic. The more cars the more litter. ◆

Recon . . .

A quick overview of the conservation scene

To encourage development of more sediment-control ordinances in south-central Michigan, the Grand River Watershed Council recently published *Soil Erosion and Sedimentation Control Programs.* The 16-page, illustrated brochure is part of the council's campaign to generate public awareness and support for "erosion control on a regional basis." Local soil conservation districts, SCS, and the Cooperative Extension Service are joining the council in the basinwide effort.

More trees . . .

The re-creation of a forest like the one California's Mariposa County had 150 years ago is the aim of an intensified tree-planting program begun by the Mariposa Soil Conservation District. To get things growing, the California district donates a few trees to any landowner and helps put them in the ground.

. . . means less noise

Properly located barriers of trees and shrubs can reduce noise by as much as 50 percent, according to a continuing study at the University of Nebraska. Noise reduction by trees in combination with grass can be as much as 65 percent. Tree height is important since sound is diffused and absorbed over a larger area.

"Farmers have been fighting pollution for years. The only difference is they have been calling it erosion control. We can't afford at present-day prices of fertilizer and pesticides to let them be washed into streams and rivers."—SAM STUDEBAKER, *former president of the National Association of Conservation Districts, recent recipient of Ohio's Conservation Award.*

A technical guide for erosion control tailored to New Jersey's soils and climate is being published as a supplement to a similar publication released this spring by the SCS Regional Technical Service Center at Upper Darby, Pa. New Jersey's *Guide for Sediment, Pollution and Erosion Control in Urban Areas* will be distributed initially to SCS field offices throughout the state.

Sediment-control scoreboard

—The City Council of Solon, Ohio, passed a resolution instructing the city solicitor to prepare a sediment- and erosion-control ordinance. The Cuyahoga Soil Conservation District and SCS will assist in the review of all plans for future land use development in the city. This is the third such ordinance to be passed this year in Ohio.

—By the end of March 1970, 13 Pennsylvania soil and water conservation districts had entered into memorandums of understanding with country planning commissions to review subdivision plans for sediment and erosion-control measures.

—Amherst, N.Y., a suburb of Buffalo, now includes soil and water conservation-planning requirements in procedures leading to approval of permits to build subdivisions.

Urban process

. . . The whole urbanization process has become an increasingly troublesome environmental problem, and not from the standpoint of sedimentation alone. A study released some months ago by the American Institute of Planners revealed that land is being urbanized at the rate of 3,000 acres per day.

We are not so much concerned with running out of land as with running short of land for particular uses. Even with a continued rise in total population one-half of the counties in the United States are losing population. A reversal of this trend is not only desirable, it is essential.

There are many sound reasons for an orderly development of less densely populated areas. We have the space and we have the ability. Science, technology, and the ingenuity of the American farmers with the help of public agencies, private institutions, and industries serving agriculture have gone a long way toward making this possible.—UNDER SECRETARY OF AGRICULTURE, J. PHIL CAMPBELL, *at an Earth Day observance April 22, 1970, Washington, D.C.*

In *A New Life for the Country,* a 44-page report, the President's Task Force on Rural Development recommends: The creation of a rural development credit bank; greater use of funds for comprehensive planning; increased involvement of Land-Grant colleges and universities in education and information programs for countryside communities; development of zoning guidelines that provide for adequate open space and recreation in growth centers; a national campaign to involve people in their local government; and other programs "intended to help create a Nation of greater beauty, deeper satisfaction, and expanded opportunities for all Americans. . ."

Maryland Governor Marvin Mandel signed the Nation's first statewide sediment-control program on "Earth Day" (Apr. 22, 1970). House Bill 1151, which had been passed by the Maryland General Assembly earlier this spring, will become effective July 1, 1970. It is an expansion of the Patuxent River Watershed Protection Law that has been in effect since July 1, 1969. All land clearing and earthmoving for construction of any kind must hinge on a sediment-control plan and program approved by the soil conservation district.

From the Administrator:

Planning for the environment

"Environmental problems have become critical, and cooperation between all levels of government will be required in a massive effort to restore and maintain environmental quality."

The statement, echoing one of our pressing national worries, is a part of the foreword of a new publication on the conservation scene, **Community Action Guidebook for Soil Erosion and Sediment Control.**

The publisher is the National Association of Counties Research Foundation, with support from the National Association of Conservation Districts and the Soil Conservation Society of America. The book's appearance reflects the start of a long and forceful step toward an urgent goal.

In hundreds of counties of the United States—and in cities, towns, and villages—a movement of singular importance is gaining momentum. Local officials and heads of civic groups are launching determined efforts, not for rapid business and industrial expansion as in former years, but for a wholesome, orderly development of the whole area in which residents may live a good life, and in which new business and industry may find a compatible climate.

These local units of government are the bodies with the muscle and the tools, the authorities and the action corridors, to create the environment our Nation is seeking. State and Federal governments can help with the job, but the local leaders—with the ability to communicate with the community—carry the load.

The element too often lacking to produce wise land use decisions along this broad front has been information on the character and limitations of land, water, and related resources for mankind's use. As the guidebook points out, much of this information, along with technical help for its use, is available from the Soil Conservation Service.

SCS, in turn, has the responsibility to be there at the time of planning and decision-making and when the plans take form on the land. Land use and health ordinances and building codes relating to land and water resources are specific areas in which SCS technical help can backstop the efforts of local governments.

Our goals for the 1970's include participation in land, water, and related phases of comprehensive area planning as a basis for the swift growth ahead for this Nation. Planning starts with land and water, and it succeeds as the people concerned work together in a spirit of cooperation and rational compromise.

A new relationship is developing among conservation district leaders, SCS, and the leaders of county and city governments. It is a relationship that can be counted on to yield sound planning decisions and to avoid some of those "irreversible mistakes" which have raised ugly heads to haunt many communities in recent decades.

The new guidebook of the National Association of Counties, though aimed at sediment control as its specific target, is a milepost on the long journey toward the conservation use of all our land and water resources, on both sides of city and county lines.

Kenneth E. Grant

UNITED STATES
GOVERNMENT PRINTING
DIVISION OF PUBLIC DOC
WASHINGTON, D. C. 2

OFFICIAL BUSINES
PENALTY FOR PRIVATE US

82 JAN
UNIVERSITY MICROFILMS
SERIALS SECTION
300 NORTH ZEEB RD.
ANN ARBOR, MI 48106

POSTAGE AND FEES PAID
U. S. GOVERNMENT PRINTING OFFICE

If your address changes, please notify us of your complete new address, including Zip Code number, and include old address with our code number as shown above.

Planting guide aids road-erosion control

In northwestern Colorado, the state's Department of Highways is using a Soil Conservation Service-prepared guide to control erosion and stabilize soils along State and Interstate highways.

The publication, *Planting Guide for Difficult Sites,* is prepared by SCS technicians on a county-by-county basis. It delineates climatic zones and ties planting recommendations to each zone.

The climatic zones are a combination of ranges in precipitation and temperature which correspond closely to elevation. These two factors with soil influences result in different natural plant communities. Each county Planting Guide consists of a county map with climatic zone designations, plus the seeding recommendations for each climatic zone, with slope and soil differences considered. Alkalinity and sandiness are also included where they occur.

Several factors influenced the need for guidelines to stabilize soils in northwestern Colorado. The geographical area has a complex climate with widely varying precipitation patterns, elevations, and soils. Interstate Highway 70 construction is well underway in the area. With these problems in mind, and using the guide as a basis, decisions can be made as to where and when to establish adapted planting materials for erosion prevention and beautification of the right-of-way.—JAMES E. PRESTON AND LEO W. MILLS, *area range conservationist, SCS, Glenwood Springs, Colo., and landscape foreman, Colorado Highway Department, Grand Junction, Colo.* ♦

Highway crews (below) plant and stake shrubs on Interstate 70 near Glenwood, Colo. A few miles west, an unprotected new roadbank (right) is heavily damaged.